STIC Search Report
EIC 1700

STIC Database Tracking Number: 130741

TO: Alex Noguerola **Location: REM 8C65** **Art Unit : 1753** **September 7, 2004** **Case Serial Number: 10/019220**	**From: Kathleen Fuller** **Location: EIC 1700** **REMSEN 4B28** **Phone: 571/272-2505** **Kathleen.Fuller@uspto.gov**

Search Notes

130741

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

SEARCH REQUEST FORM

Requestor's Name: Alex Noguerola

Serial Number: 10/019,220

Date: 8/25/04

Phone: 571 272-1343 TC 65

Art Unit: 1753

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

STAFF USE ONLY

Date completed:

Searcher: K. Fuller

Terminal time: 40

Elapsed time:

CPU time:

Total time: 70

Number of Searches: 1

Number of Databases:

Search Site 1700

- ~~STIC~~
- CM-1
- Pre-S

Type of Search

- N.A. Sequence
- A.A. Sequence
- Structure
- Bibliographic

Vendors

- IG Suite
- STN
- Dialog
- APS
- Geninfo
- SDC
- DARC/Questel
- Other

130741

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

SEARCH REQUEST FORM

Requestor's Name: Alex Noguerola Serial Number: 10/019,220

Date: 8/25/04 Phone: 571 272-1343 (SC 65) Art Unit: 1753

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

22. New) An amperometric sensor suitable for determining the concentration of hydrogen peroxide in a sample, said sensor comprising a ferricyanide compound which, in reduced form, functions as a mediator selective for hydrogen peroxide.

25. (New) A sensor according to claim 22, wherein the ferricyanide compound is of general formula:

$$X_3 Fe(CN)_6$$

in which the groups X are the same or different and at least one X is a non-metallic ion.

40. A ferricyanide compound of formula:

$$X_3 Fe(CN)_6$$

in which the groups X are the same or different and each is a quaternary ammonium ion, at least one of the quaternary ammonium ions having (a) four identical alkyl groups of 5 to 11 carbon atoms other than heptyl or (b) three methyl groups and an alkyl group of 6 to 20 carbon atoms other than hexadecyl.

STAFF USE ONLY

Date completed:
Searcher: K. Fuller
Terminal time: 40
Elapsed time:
CPU time:
Total time: 70
Number of Searches: 1
Number of Databases:

Search Site 1700
- ~~STIC~~
- CM-1
- Pre-S

Type of Search
- N.A. Sequence
- A.A. Sequence
- 1 Structure
- Bibliographic

Vendors
- IG Suite
- ✓ STN
- Dialog
- APS
- Geninfo
- SDC
- DARC/Questel
- Other

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact*:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art* ***found****, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art* ***not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

=> FILE REG
FILE 'REGISTRY' ENTERED AT 16:47:53 ON 07 SEP 2004

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

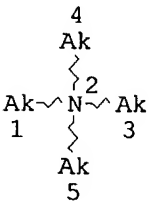
Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 16:47:58 ON 07 SEP 2004

FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE L39
L29 STR

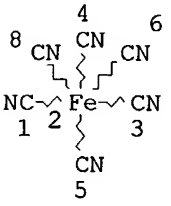


KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M5 C AT 3

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE
L32 STR



25 structures from the query

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L34	25	SEA FILE=REGISTRY SSS FUL L32 AND L29	
L36	1	SEA FILE=REGISTRY ABB=ON HYDROGEN PEROXIDE/CN	
L37	13	SEA FILE=HCAPLUS ABB=ON L34	13 CA reference
L38	82929	SEA FILE=HCAPLUS ABB=ON L36	
L39	1	SEA FILE=HCAPLUS ABB=ON L37 AND L38	only 1 CA references with H_2O_2

=> D L39 BIB ABS IND HITSTR

L39 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:12656 HCAPLUS
DN 134:65598
TI Amperometric sensor for hydrogen peroxide and glucose determination
IN Lau, Kim King Tong; Slater, Jonathan Mark
PA Drew Scientific Limited, UK
SO PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001000865	A2	20010104	WO 2000-GB2504	20000629
	WO 2001000865	A3	20010913		
	W: CA, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1194585	A2	20020410	EP 2000-940660	20000629

applicants

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI
PRAI GB 1999-15181 A 19990629
WO 2000-GB2504 W 20000629
OS MARPAT 134:65598
AB An amperometric sensor suitable for determining the concentration of hydrogen peroxide in a sample, said sensor comprising a ferricyanide compound which, in reduced form, functions as a mediator specific to hydrogen peroxide.
IC ICM C12Q001-00
CC 79-2 (Inorganic Analytical Chemistry)
ST hydrogen peroxide detn amperometric sensor; glucose sensor
IT Polyamides, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(acrylic; glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT Sensors
(amperometric; hydrogen peroxide determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT Glucose sensors
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT Phosphonium compounds
Quaternary ammonium compounds, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT Acrylic polymers, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(polyamide-; glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT 50-99-7, Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT 79-06-1D, Acrylamide, polymeric derivs. quaterized ferricyanide salts
110-86-1D, Pyridine, polymeric derivs. quaterized ferricyanide salts, analysis **55066-68-7** 58375-66-9 **313511-66-9**
313511-73-8 313511-84-1 313511-88-5
313511-91-0 313511-94-3 313511-97-6
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT **313511-61-4P**
RL: ARU (Analytical role, unclassified); DEV (Device component use); PNU (Preparation, unclassified); ANST (Analytical study); PREP (Preparation); USES (Uses)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)
IT 4328-13-6, Tetrahexylammonium bromide 13746-66-2, Potassium ferricyanide
RL: RCT (Reactant); RACT (Reactant or reagent)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(hydrogen peroxide determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

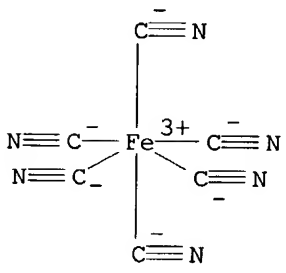
IT 9001-37-0, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(hydrogen peroxide determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

IT **55066-68-7 313511-66-9 313511-73-8**
313511-84-1 313511-88-5 313511-91-0
313511-94-3 313511-97-6
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

RN 55066-68-7 HCAPLUS
CN 1-Hexadecanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



CM 2

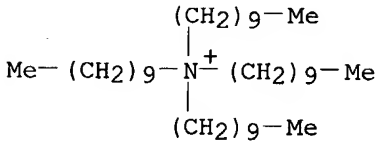
CRN 6899-10-1
CMF C19 H42 N

$Me_3{}^{+}N-(CH_2)_{15}-Me$

RN 313511-66-9 HCAPLUS
CN 1-Decanaminium, N,N,N-tris(decyl)-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

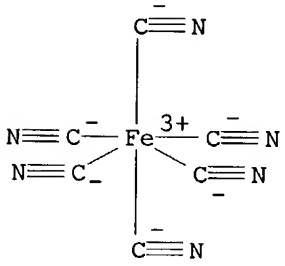
CM 1

CRN 48078-03-1
CMF C40 H84 N



CM 2

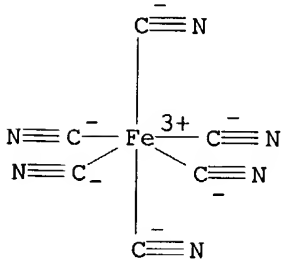
CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



RN 313511-73-8 HCAPLUS
CN 1-Tetradecanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



CM 2

CRN 10182-92-0
CMF C17 H38 N

$Me_3{}^{+}N-(CH_2)_{13}-Me$

RN 313511-84-1 HCAPLUS
CN 1-Hexanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

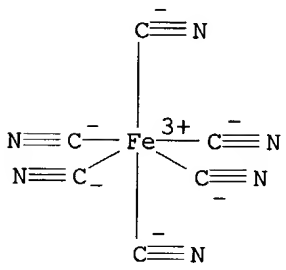
CM 1

CRN 16208-27-8
CMF C9 H22 N

$Me-(CH_2)_5-N^{+}Me_3$

CM 2

CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



RN 313511-88-5 HCAPLUS
CN 1-Heptanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

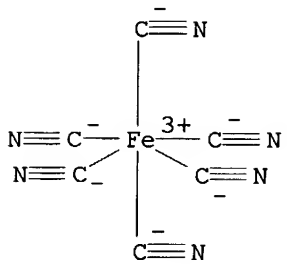
CM 1

CRN 17077-60-0
CMF C10 H24 N

$Me-(CH_2)_6-N^{+}Me_3$

CM 2

CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



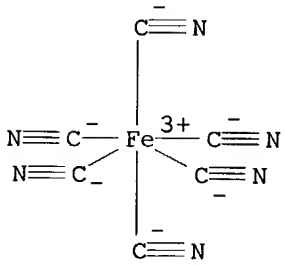
RN 313511-91-0 HCAPLUS
CN 1-Octanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 15461-38-8
CMF C11 H26 N

CM 2

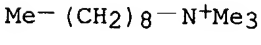
CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



RN 313511-94-3 HCAPLUS
CN 1-Nonanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

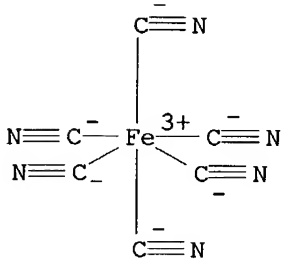
CM 1

CRN 35819-23-9
CMF C12 H28 N



CM 2

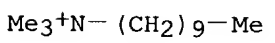
CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



RN 313511-97-6 HCAPLUS
CN 1-Decanaminium, N,N,N-trimethyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

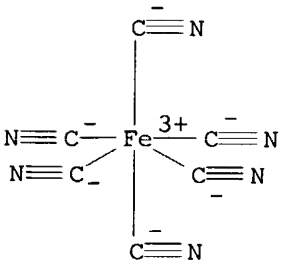
CM 1

CRN 15053-09-5
CMF C13 H30 N



CM 2

CRN 13408-62-3
CMF C6 Fe N6
CCI CCS



IT **313511-61-4P**
RL: ARU (Analytical role, unclassified); DEV (Device component use); PNU (Preparation, unclassified); ANST (Analytical study); PREP (Preparation); USES (Uses)

(glucose determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

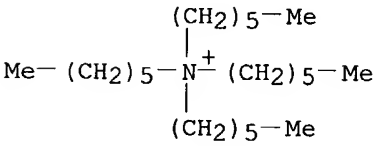
RN 313511-61-4 HCAPLUS

CN 1-Hexanaminium, N,N,N-trihexyl-, (OC-6-11)-hexakis(cyano-κC)ferrate(3-) (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 20256-54-6

CMF C24 H52 N

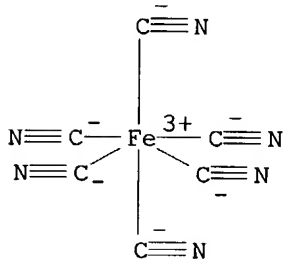


CM 2

CRN 13408-62-3

CMF C6 Fe N6

CCI CCS



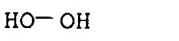
IT **7722-84-1**, Hydrogen peroxide, analysis

RL: ANT (Analyte); ANST (Analytical study)

(hydrogen peroxide determination by amperometric sensor with ferricyanide compound as mediator and glucose oxidase)

RN 7722-84-1 HCAPLUS

CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)



=> => D QUE

L12 4 SEA FILE=REGISTRY ABB=ON ("C6FEN6.(C2H3CL)X.2ZN"/MF OR "C6FEN6.(C4H5CL)X.2ZN"/MF OR C6FEN6.1/2C2H8N2.3/2CO.H/MF OR C6FEN6.1/2C4H3BRS.3C3H9SN.H2O/MF)

L13 4 SEA FILE=REGISTRY ABB=ON (C6FEN6.1/2C4H3NO2S.3C3H9SN.3H2O/MF OR C6FEN6.1/2C4H4S.3C3H9SN.H2O/MF OR C6FEN6.1/2C6FEN6.2H5O2.3H/

MF OR C6FEN6.1/2C6FEN6.3/2FE.1/2K/MF)
L14 2 SEA FILE=REGISTRY ABB=ON (C6FEN6.1/2H12N4PT/MF OR C6FEN6.1/2H12N4PT.2NA/MF)
L15 1 SEA FILE=REGISTRY ABB=ON C6FEN6.1/3CS.4/3NI/MF
L16 1 SEA FILE=REGISTRY ABB=ON C6FEN6.14/9H4N.11/9MN/MF
L17 1 SEA FILE=REGISTRY ABB=ON C6FEN6.2/3C4H12N.5/3O2U/MF
L18 1 SEA FILE=REGISTRY ABB=ON C6FEN6.2/3H4N.4/3K.2/3TM/MF
L19 2 SEA FILE=REGISTRY ABB=ON (C6FEN6.2/5H16MO6O22.4/5H/MF OR C6FEN6.22/15BI.2/5NO3/MF)
L20 2 SEA FILE=REGISTRY ABB=ON (C6FEN6.2AG.2H4N.XH2O/MF OR C6FEN6.2AG.H4N/MF)
L21 5 SEA FILE=REGISTRY ABB=ON (C6FEN6.2BI.2NO3/MF OR C6FEN6.2C2H10CUN2O/MF OR C6FEN6.2C2H10CUN2O.4H2O/MF OR C6FEN6.2C2H2N2NI2S2/MF)
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L23 8 SEA FILE=REGISTRY ABB=ON (C6FEN6.2C3H9S.2H/MF OR C6FEN6.2C3H9SN.C2H6SN/MF OR C6FEN6.2C3H9SN.C2H6SN.3H2O/MF OR C6FEN6.2C4H12CUN2/MF OR C6FEN6.2C4H12N.2H/MF OR C6FEN6.2C4H12N.2H2O.H/MF OR C6FEN6.2C4H12N.2H2O.LI/MF OR C6FEN6.2C4H12N.3/2H2O.2H/MF)
L24 8 SEA FILE=REGISTRY ABB=ON (C6FEN6.2C4H12N.H/MF OR C6FEN6.2C4H12N.H2O.NA/MF OR C6FEN6.2C4H12N.K/MF OR C6FEN6.2C4H12N.LI/MF OR C6FEN6.2C4H12N.NA/MF OR C6FEN6.2C4H12N.RB/MF OR C6FEN6.2C4H12N.TL/MF OR C6FEN6.2C4H13N3.4H/MF)
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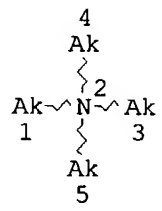
L26 55 SEA FILE=REGISTRY ABB=ON (L12 OR L13 OR L14 OR L15 OR L16 OR L17 OR L18 OR L19 OR L20 OR L21 OR L22 OR L23 OR L24 OR L25)
L29 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M5 C AT 3

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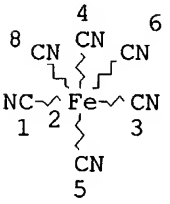
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE
L32 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

16 more CA references with

L34 25 SEA FILE=REGISTRY SSS FUL L32 AND L29
L36 1 SEA FILE=REGISTRY ABB=ON HYDROGEN PEROXIDE/CN
L37 13 SEA FILE=HCAPLUS ABB=ON L34
L38 82929 SEA FILE=HCAPLUS ABB=ON L36
L39 1 SEA FILE=HCAPLUS ABB=ON L37 AND L38
L40 387 SEA FILE=HCAPLUS ABB=ON L38 AND ?FERRICYANIDE?
L41 17 SEA FILE=HCAPLUS ABB=ON L40 AND SENSOR?
L42 48 SEA FILE=HCAPLUS ABB=ON L26
L43 0 SEA FILE=HCAPLUS ABB=ON L38 AND L42
L44 17 SEA FILE=HCAPLUS ABB=ON L41 OR L43
L45 16 SEA FILE=HCAPLUS ABB=ON L44 NOT L39

=> D L45 BIB ABS IND HITSTR 1-16

L45 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:375567 HCAPLUS
DN 140:367826
TI Printed circuit board electrochemical **sensor**
IN Shiu, Tian-Tsai; Jang, Jing-Yu; Wang, Ji-Wen
PA Industrial Technology Research Institute, Taiwan
SO Taiwan, 4 pp.
CODEN: TWXXA5
DT Patent
LA Chinese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	TW 496110	B	20020721	TW 1998-87117851	19981028
PRAI	TW 1998-87117851		19981028		

AB This invention provides a novel manufacture process of printed circuit board (PCB) electrochem. **sensor**. A precious metal material of required thickness is plated onto an outer surface of a standard PCB to fully cover the conductive circuit substrate of the PCB. According to the invention, all the conductive nods of the electrodes on the same substrate are linked to an electrode during circuit layout. When preparing the electrochem. electrode, the precious metal electrode material of required thickness is then plated onto an outer surface of a standard PCB to fully cover the conductive circuit substrate of the PCB. There is no substrate

exposed on the cross-section surface to achieve the purpose of using the manufacture and material of PCB for electrochem. electrode. The invention also discloses an electrochem. **sensor** obtained though the manufacture process.

IC ICM H05K003-00
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 9, 80
ST printed circuit electrochem **sensor**
IT **Sensors**
(electrochem.; printed circuit board electrochem. **sensor**)
IT Blood analysis
(glucose; printed circuit board electrochem. **sensor**)
IT Composites
Electric circuits
Electric conductivity
Electrodes
Glass substrates
Glucose **sensors**
Materials
Printed circuit boards
Surface
Thickness
(printed circuit board electrochem. **sensor**)
IT Enzymes, uses
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(printed circuit board electrochem. **sensor**)
IT Noble metals
RL: DEV (Device component use); USES (Uses)
(printed circuit board electrochem. **sensor**)
IT Ceramics
(substrates; printed circuit board electrochem. **sensor**)
IT 50-99-7, Glucose, analysis **7722-84-1**, Hydrogen peroxide, analysis 13746-66-2, Potassium **ferricyanide**
RL: ANT (Analyte); ANST (Analytical study)
(printed circuit board electrochem. **sensor**)
IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(printed circuit board electrochem. **sensor**)
IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(printed circuit board electrochem. **sensor**)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:571175 HCAPLUS
DN 139:110751
TI Method and apparatus for processing electrochemical signals
IN Iyengar, Sridhar G.; Haas, Daniel; Bolon, Craig
PA Agamatrix, Inc., USA

SO PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003060154	A2	20030724	WO 2003-US1113	20030115
	WO 2003060154	A3	20040805		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003178322	A1	20030925	US 2003-342794	20030115
PRAI	US 2002-350175P	P	20020115		

AB Systems and methods are provided herein for improving the selectivity and productivity of **sensors** via digital signal processing techniques. According to one illustrative embodiment, in an electrochem. method for monitoring of a select analyte in a mixed sample with an interfering analyte, an improvement is provided that includes applying a large amplitude potential stimulus waveform to the sample to generate a nonlinear current signal; and resolving a signal contribution from the select analyte in the generated signal by a vector projection method with an analyte vector comprising a plurality of real and imaginary parts of one or more Fourier coeffs. at one or more frequencies of a reference current signal for the select analyte.

IC ICM C12Q001-00
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 72, 80
ST app electrochem signal processing
IT Mathematical methods
(Fourier-transform; analyte determination in mixts. by electrochem. anal. and
method and apparatus for processing electrochem. signals for improved selectivity)
IT Polarography
(a.c.; analyte determination in mixts. by electrochem. anal. and method and apparatus for processing electrochem. signals for improved selectivity)
IT Cyclic voltammetry
Data processing
Linear-sweep voltammetry
Potentiostats
Square wave voltammetry
(analyte determination in mixts. by electrochem. anal. and method and apparatus for
processing electrochem. signals for improved selectivity)
IT Enzymes, analysis
RL: ANT (Analyte); ANST (Analytical study)
(analyte determination in mixts. by electrochem. anal. and method and apparatus for
processing electrochem. signals for improved selectivity)

IT Electric circuits
(galvanostats; analyte determination in mixts. by electrochem. anal. and method
and apparatus for processing electrochem. signals for improved selectivity)
IT Electric impedance
(spectroscopy; analyte determination in mixts. by electrochem. anal. and method
and apparatus for processing electrochem. signals for improved selectivity)
IT 50-99-7, D-Glucose, analysis 51-61-6, Dopamine, analysis 69-93-2, Uric acid, analysis 102-54-5, Ferrocene 103-90-2, Acetaminophen **7722-84-1**, Hydrogen peroxide, analysis 13408-62-3, **Ferricyanide** 13408-63-4, Ferrocyanide
RL: ANT (Analyte); ANST (Analytical study)
(analyte determination in mixts. by electrochem. anal. and method and apparatus for
processing electrochem. signals for improved selectivity)
IT 50-81-7, Ascorbic acid, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(analyte determination in mixts. by electrochem. anal. and method and apparatus for
processing electrochem. signals for improved selectivity)
IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(analyte determination in mixts. by electrochem. anal. and method and apparatus for
processing electrochem. signals for improved selectivity)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:300042 HCAPLUS
DN 139:116295
TI Measurement system of low glucose concentration during the cultivation of yeast cells
AU Kishimoto, Tomokazu; Hara, Seiichi; Muraji, Masafumi; Tsujimoto, Hiroaki; Azuma, Masayuki; Ooshima, Hiroshi
CS Department of Physical Electronics and Information, Japan
SO Memoirs of the Faculty of Engineering, Osaka City University (2002), 43, 19-23
CODEN: MFEOAR; ISSN: 0078-6659
PB Osaka City University, Faculty of Engineering
DT Journal
LA English
AB A yeast cell changes an active state in accordance with glucose concentration in
a culture medium. Below a certain critical glucose concentration under aerobic conditions, the yeast respires. Exceeding its value, the yeast changes an active state to fermentation The aim of our study is to maintain the state of respiration and fermentation of yeast artificially. And so, a glucose **sensor** was needed to satisfy with respiration condition. In this study, we tried to construct the glucose **sensor** which was to measure glucose concns. in very low region for a long time and to maintain quasi real-time measurement. The **sensor** was constructed using

the phenomena of light emission by luminol, we evaluated the sensitivity, stability and reliability of it. The **sensor** was robust against outer disturbances, and had an influence by flow rate of solution, and dialysis rate. A detailed explanation of aerobic conditions and of reaction principle of the constructed glucose **sensor** will be presented here. And then, some basic characteristics of the glucose **sensor** will be shown here as well.

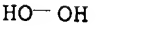
CC 16-1 (Fermentation and Bioindustrial Chemistry)
ST yeast fermn glucose measurement
IT Metabolism
(Crabtree effect; system to measure low glucose concns. during yeast fermns.)
IT Fermentation
(aerobic; system to measure low glucose concns. during yeast fermns.)
IT Biosensors
(enzymic; system to measure low glucose concns. during yeast fermns.)
IT Process control
(online; system to measure low glucose concns. during yeast fermns.)
IT Fermentation
Saccharomyces cerevisiae
(system to measure low glucose concns. during yeast fermns.)
IT 50-99-7, Dextrose, analysis
RL: ANT (Analyte); BCP (Biochemical process); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(system to measure low glucose concns. during yeast fermns.)
IT 9001-37-0, Glucose oxidase
RL: ARG (Analytical reagent use); BCP (Biochemical process); CAT (Catalyst use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(system to measure low glucose concns. during yeast fermns.)
IT 521-31-3, Luminol 13746-66-2, Potassium **ferricyanide**
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(system to measure low glucose concns. during yeast fermns.)
IT **7722-84-1P**, Hydrogen peroxide, preparation
RL: BPN (Biosynthetic preparation); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(system to measure low glucose concns. during yeast fermns.)
IT **7722-84-1P**, Hydrogen peroxide, preparation
RL: BPN (Biosynthetic preparation); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(system to measure low glucose concns. during yeast fermns.)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:114720 HCAPLUS
DN 140:24956
TI Chemiluminescence microfluidic system **sensor** on a chip for determination of glucose in human serum with immobilized reagents
AU Lu, Yi; Zhang, Zhujun; Chen, Funan

CS Institute of Analytical Science, Department of Chemistry, Southwest Normal University, Chungking, 400715, Peop. Rep. China
SO Talanta (2003), 59(3), 571-576
CODEN: TLNTA2; ISSN: 0039-9140
PB Elsevier Science B.V.
DT Journal
LA English
AB A chemiluminescence (CL) biosensor on a chip coupled to microfluidic system is described in this paper. The CL biosensor measured 25+45+5 mm in dimension, was readily produced in anal. laboratory Glucose oxidase (GOD) was immobilized onto controlled-pore glass (CPG) via glutaraldehyde activation and packed into a reservoir. The anal. reagents, including luminol and **ferricyanide**, were electrostatically co-immobilized on an anion-exchange resin. The most characteristic of the biosensor was to introduce the air as the carrier flow instead of the common solution carrier for the first. The glucose was sensed by the CL reaction between hydrogen peroxide produced from the enzymic reaction and CL reagents, which were released from the anion-exchange resin. The proposed method has been successfully applied to the determination of glucose in human serum. The linear range of the glucose concentration was 1.1-110 mM and the detection limit was 0.1 mM (3σ).
CC 9-1 (Biochemical Methods)
ST chemiluminescence biosensor glucose detn blood serum
IT Blood analysis
Blood serum
Human
(chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
IT Biosensors
(enzymic, chemiluminescent; chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
IT 50-99-7, D-Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
IT **7722-84-1**, Hydrogen peroxide, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
IT 521-31-3D, Luminol, immobilized 9001-37-0D, Glucose oxidase, immobilized 13408-62-3D, **Ferricyanide**, immobilized
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
IT **7722-84-1**, Hydrogen peroxide, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(chemiluminescence microfluidic biosensor on a chip for determination of glucose in human serum with immobilized enzyme and reagents)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)



RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:535543 HCAPLUS
DN 137:269618
TI Electrochemical preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt
AU Cui, Xingpin; Hong, Li; Lin, Xiangqin
CS Department of Chemistry, University of Science and Technology of China, Hefei, 230026, Peop. Rep. China
SO Journal of Electroanalytical Chemistry (2002), 526(1-2), 115-124
CODEN: JECHES
PB Elsevier Science B.V.
DT Journal
LA English
AB Hybrid Cu-Co hexacyanoferrate (CuCoHCF) films were electrodeposited on a Pt electrode or a glassy C electrode by cyclic voltammetry and characterized by electrochem., XRD, ICP-AES and XPS. The results indicated that CuCoHCF was a substitution-type hybrid hexacyanoferrate. With the increase of Cu2+ content in the deposition solution, the Cu2+ content in the films increased correspondingly, while the lattice constant of the films decreased gradually. The CuCoHCF modified Pt electrode exhibited stable electrochem. responses in a wide pH range of 4-10 and permeability for monovalent cations in the order of K+>Li+>Na+>NH4+, both of which are different from those of the resp. single component Cu or Co hexacyanoferrates. XPS gave direct evidence that the Fe element existed as Fe(III) in oxidized films and was reduced to Fe(II) during x-ray scanning. K+ was incorporated into and excluded from CuCoHCF films to maintain elec. neutrality during the reduction and oxidation process, resp. The CuCoHCF modified glassy C electrode exhibited obvious electrocatalytic activity towards both reduction and oxidation of H2O2. When a cathodic catalytic current was used, the **sensor** exhibited a linear response in a H2O2 concentration range of 2.3 + 10-3-8.1 + 10-7 M with a detection limit of 6.6 + 10-8 M The H2O2 **sensor** showed excellent stability and anti-interference ability towards O and other easily oxidized compds. due to a low applied potential of 0.02 V, which is a great merit for further application in the field of biosensors.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 67, 79
ST electrochem prepn electrode modified hybrid copper cobalt hexacyanoferrate
IT Auger electron spectra
Chemically modified electrodes
Cyclic voltammetry
Electrodeposition
X-ray diffraction
X-ray photoelectron spectra
(electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)
IT **Sensors**
(electrochem., for cations; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)
IT Oxidation catalysts
Redox reaction

Reduction catalysts
(electrochem.; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT Permeability
(to cations; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 13601-13-3P 15415-49-3P 41754-48-7P
RL: CAT (Catalyst use); DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT **7722-84-1**, Hydrogen peroxide, properties
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(electrochem. reduction and oxidation of; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); USES (Uses)
(electrode; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(glassy, electrode; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 7757-79-1, Potassium nitrate, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in cobalt copper hexacyanoferrate-modified electrode preparation; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 7758-98-7, Copper sulfate, reactions 10141-05-6, Cobalt nitrate 13746-66-2, Potassium **ferricyanide**
RL: RCT (Reactant); RACT (Reactant or reagent)
(in cobalt copper hexacyanoferrate-modified electrode preparation; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT 7439-93-2D, Lithium, ions, properties 7440-09-7D, Potassium, ions, properties 7440-23-5D, Sodium, ions, properties 14798-03-9, Ammonium, properties
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(sensing of; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

IT **7722-84-1**, Hydrogen peroxide, properties
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(electrochem. reduction and oxidation of; electrochem. preparation, characterization and application of electrodes modified with hybrid hexacyanoferrates of copper and cobalt)

RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

RE.CNT 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

AN 2000:109096 HCAPLUS
DN 132:331556
TI Flexible amperometric transducers for biosensors based on a screen printed three electrode system
AU Erlenkotter, A.; Kottbus, M.; Chemnitius, G. -C.
CS Department of Inorganic Chemistry, University of Munster, Munster, D-48149, Germany
SO Journal of Electroanalytical Chemistry (2000), 481(1), 82-94
CODEN: JECHES; ISSN: 0368-1874
PB Elsevier Science S.A.
DT Journal
LA English
AB Screen printed three electrode **sensors** comprising a platinum working, a carbon counter and an Ag|AgCl pseudo reference electrode were developed employing polymer thick film inks. The **sensors** were constructed as amperometric transducers for multianalyte biosensors for use in batch, as well as in flow through systems. The characteristics of the **sensors** were determined The active surface area of the Pt working electrodes was determined using electrochem. and SEM studies. Cyclic voltammograms of the **ferricyanide**/ferrocyanide couple showed that the reaction was quasi-reversible at these electrodes. Although the surface was not ideal for this redox couple, the **sensors** proved to be reproducible and well suited for the determination of hydrogen peroxide and thus for biosensors based on oxidases as biol. active compds. The combination of two pretreatment steps, an addnl. heat curing and an electrochem. preconditioning step, was found to be most helpful to reduce background current and settling time of the **sensors**. Different aspects of the changing surface composition are discussed. The **sensors** with optimized preconditioning showed linear ranges from 10 μM up to at least 500 μM hydrogen peroxide and sensitivities of 6.97±0.20 nA μM-1 hydrogen peroxide for uncovered, 4.01±0.08 nA μM-1 hydrogen peroxide for PCS/BSA membrane covered and 0.222±0.002 nA μM-1 hydrogen peroxide for Nafion® coated platinum working electrodes. Moreover, optimized transducers with immobilized sarcosine oxidase (sensitivity: 2.30±0.07 nA μM-1 sarcosine) demonstrated the feasibility of the **sensor** concept, the manufacturing and pretreatment processes for the development of enzyme **sensors**.
CC 9-7 (Biochemical Methods)
Section cross-reference(s): 6, 7, 72
ST amperometric electrode biosensor screen printing enzyme
IT Biosensors
Electrodes
Enzyme electrodes
(amperometric; flexible amperometric transducers for biosensors based on a screen printed three electrode system)
IT Electrodes
Screen printing
(flexible amperometric transducers for biosensors based on a screen printed three electrode system)
IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(flexible amperometric transducers for biosensors based on a screen printed three electrode system)
IT 107-97-1, Sarcosine
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)

(flexible amperometric transducers for biosensors based on a screen printed three electrode system)

IT 9029-22-5, Sarcosine oxidase 9035-73-8, Oxidase
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(flexible amperometric transducers for biosensors based on a screen printed three electrode system)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(flexible amperometric transducers for biosensors based on a screen printed three electrode system)

RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:47107 HCAPLUS
DN 132:87444
TI Chemical sensing techniques employing liquid-core optical fibers
IN Fein, Harry; Liu, Su-yi
PA World Precision Instruments, Inc., USA
SO U.S., 13 pp., Cont.-in-part of U. S. Ser. No. 951,254.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6016372	A	20000118	US 1998-55865	19980406
	US 6011882	A	20000104	US 1997-951254	19971016
	EP 909946	A2	19990421	EP 1998-308481	19981016
	EP 909946	A3	19990811		
	EP 909946	B1	20040623		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI	US 1997-951254	A2	19971016		
	US 1998-55865	A	19980406		

AB A gas or vapor permeable optical fiber waveguide with a liquid core is employed as a probe for the detection or measurement of a chemical specie of interest by filling the waveguide core region with a reagent liquid which undergoes a change in an optical characteristic thereof when exposed to the chemical specie and then inserting the filled waveguide into an environment in which the chemical specie may be present. The chemical specie, if present, will permeate through the waveguide wall and react with or be absorbed in the core liquid Sensitivity is enhanced by controlling the pressure differential across the waveguide wall and/or by shaping the waveguide to enlarge the surface area. When the reaction generates light, the devices which detect that light will be shaped and disposed to maximize the collection thereof. The **sensor** is suitable for applications including CO2, O2, CO, H2S, NO2 NH3, O3, H2O2, chlorine,

concentrated acids detection; detection of organic compds. in water; respiratory air anal.; and an in-line monitor for control purposes.
IC ICM G02B006-20
NCL 385012000
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 9, 59, 61, 80
ST liq core optical fiber **sensor**
IT Absorption spectroscopy
Acid-base indicators
(carbon dioxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing pH indicator in aqueous carbonate-bicarbonate buffer)
IT Optical gas **sensors**
Optical gas **sensors**
(fiber-optic; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Fluorometry
Gas analysis
Luminescence spectroscopy
Optical fibers
Optical waveguides
Raman spectroscopy
Respiratory air
(gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Fiber optic **sensors**
Fiber optic **sensors**
(gas; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(inorg.; concentrated inorg. acids detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
IT Organic compounds, analysis
RL: ANT (Analyte); ANST (Analytical study)
(organic compds. detection in water by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
IT 7664-41-7, Ammonia, analysis
RL: ANT (Analyte); ANST (Analytical study)
(ammonia detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
IT 124-38-9, Carbon dioxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(carbon dioxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing pH indicator in aqueous carbonate-bicarbonate buffer)
IT 76-59-5, Bromothymol blue 143-74-8, Phenol red
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(carbon dioxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing pH indicator in aqueous carbonate-bicarbonate buffer)
IT 630-08-0, Carbon monoxide, analysis
RL: ANT (Analyte); ANST (Analytical study)

(carbon monoxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 10025-98-6, Potassium tetrachloropalladate(II) 222159-57-1, Silver p-sulfoaminobenzoate
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(carbon monoxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 7782-50-5, Chlorine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(chlorine detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 119-93-7, o-Tolidine 34314-06-2, Tetramethylbenzidine
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(chlorine detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(hydrogen peroxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 521-31-3, Luminol
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(hydrogen peroxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 13746-66-2, Potassium **ferricyanide**
RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
(hydrogen peroxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 7783-06-4, Hydrogen sulfide (H2S), analysis
RL: ANT (Analyte); ANST (Analytical study)
(hydrogen sulfide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 14402-89-2, Sodium nitroprusside
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(hydrogen sulfide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 10102-44-0, Nitrogen oxide (NO2), analysis
RL: ANT (Analyte); ANST (Analytical study)
(nitrogen dioxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 63-74-1, Sulfanilamide 121-57-3, Sulfanilic acid 32449-15-3, N-1-Naphthalenyl-1,2-ethanediamine monohydrochloride
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(nitrogen dioxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(organic compds. detection in water by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)

IT 7782-44-7, Oxygen, analysis
RL: ANT (Analyte); ANST (Analytical study)
(oxygen detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing fluorescent indicator solution)

IT 613-11-6, Leucomethylene blue 7758-89-6, Cuprous chloride 10049-05-5,

Chromous chloride
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(oxygen detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing fluorescent indicator solution)
IT 10028-15-6, Ozone, analysis
RL: ANT (Analyte); ANST (Analytical study)
(ozone detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
IT 81-88-9 13558-31-1 17372-87-1, Eosin
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(ozone detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(hydrogen peroxide detection by optical **sensor** with liquid-core-filled optical fiber waveguide containing indicator solution)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO— OH

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:524601 HCAPLUS
DN 131:283407
TI Field method for monitoring blood glucose in beef cattle
AU Rumsey, T. S.; Kahl, S.; Elsasser, T. H.
CS Growth Biology Laboratory, Livestock and Poultry Sciences Institute, Agricultural Research Service, USDA, Beltsville, MD, 20705-2350, USA
SO Journal of Animal Science (Savoy, Illinois) (1999), 77(8), 2194-2200
CODEN: JANSAG; ISSN: 0021-8812
PB American Society of Animal Science
DT Journal
LA English
AB The purpose of this study was to determine the applicability of the Accu-Chek Easy (ACE) human self-monitoring system for monitoring glycemic status in cattle. The ACE method was compared with the Yellow Springs Instrument (YSI) anal. laboratory method in two studies. A preliminary study (62 samples) and a primary study (434 samples) involved a nine-fold range and a 10-fold range, resp., of glucose concns. obtained during the acute phase response of growing beef cattle to injections of varying dosages of endotoxin. The ACE monitoring method compared with the YSI anal. method resulted in similar patterns of glucose concentration change, similar ranking of glucose means across endotoxin dosages during hyper-and hypoglycemia, and a close relationship between paired YSI and ACE concns. from common samples. The ACE method identified all nine animals that displayed hypoglycemic distress during the acute phase response to endotoxin injection. The relationship between the YSI anal. method and the ACE monitoring method was found to be nonlinear (YSI = -38.2+13.6·ACE·50; R2 =.99; Sy·x = 7.3 mg/dL), and the use of this equation to predict YSI values from ACE values in an independent data set resulted in linearity when YSI was regressed on the predicted YSI values (YSI =

-.78+1.00·Predicted YSI; R2 =.87; Sy·x = 6.9 mg/dL). Even though variation seemed greater for ACE than for YSI, we concluded that a system developed for human self-monitoring of blood glucose, such as the ACE, can be used to monitor the glycemic status of cattle.
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 14
ST blood glucose beef cattle YSI ACR method field monitoring
IT Colorimetry
(ACE method; field method for monitoring blood glucose in beef cattle)
IT Glucose **sensors**
(YSI method; field method for monitoring blood glucose in beef cattle)
IT Lipopolysaccharides
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(endotoxin; field method for monitoring blood glucose in beef cattle)
IT Toxins
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(endotoxins, from E.coli; field method for monitoring blood glucose in beef cattle)
IT Biosensors
(enzymic; field method for monitoring blood glucose in beef cattle)
IT Acute-phase response
Blood analysis
Cattle
Hyperglycemia
Hypoglycemia
(field method for monitoring blood glucose in beef cattle)
IT 50-99-7, D-Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(blood; field method for monitoring blood glucose in beef cattle)
IT 50-99-7, D-Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(field method for monitoring blood glucose in beef cattle)
IT **7722-84-1**, Hydrogen peroxide, uses 9001-37-0, Glucose oxidase 13746-66-2, Potassium **ferricyanide** 15244-10-7, Ferric sulfate hydrate
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(field method for monitoring blood glucose in beef cattle)
IT **7722-84-1**, Hydrogen peroxide, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(field method for monitoring blood glucose in beef cattle)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:262104 HCAPLUS
DN 130:275937
TI Gas **sensors** based on optical properties of liquid-core-filled optical fiber waveguides
IN Dasgupta, Purnendu K.; Liu, Su Yi; Fein, Harry
PA World Precision Instruments, Inc., USA
SO Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 909946	A2	19990421	EP 1998-308481	19981016
	EP 909946	A3	19990811		
	EP 909946	B1	20040623		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6011882	A	20000104	US 1997-951254	19971016
	US 6016372	A	20000118	US 1998-55865	19980406
PRAI	US 1997-951254	A	19971016		
	US 1998-55865	A	19980406		

AB A gas-permeable liquid-impermeable optical fiber waveguide containing a liquid core is used as a probe for the detection or measurement of a chemical compound, in which the waveguide core is filled with a light-transmitting reagent that undergoes a change in optical characteristics when exposed to the chemical compound The optical fiber waveguide wall has a refractive index of <1.33. The chemical specie, if present, will permeate through the waveguide wall and react with or be absorbed in the core liquid The waveguide typically contains Teflon AF 2400 [4,5-difluoro-2,2-bis(trifluoromethyl)-1,3-dioxole-tetrafluoroethene copolymer] as the waveguide material. Some examples of types of gases that can be detected include CO2, O2, CO, H2S, NO2, NH3, O3, H2O2, Cl2, concentrated acids, and detection of organic compds. in water.

IC ICM G01N021-05
ICS G01N021-77; G02B006-20
CC 79-2 (Inorganic Analytical Chemistry)
ST optical fiber waveguide gas **sensor**; core optical fiber waveguide gas **sensor**
IT Optical gas **sensors**
Optical gas **sensors**
(fiber-optic; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Optical gas **sensors**
(gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Fiber optic **sensors**
Fiber optic **sensors**
(gas; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Absorption spectroscopy
Colorimetry
Luminescence spectroscopy
Raman spectroscopy
(in gas sensing; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(inorg., concentrated, detection of; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT Fluorometry
(oxygen-quenched, in gas sensing; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
IT 108-95-2, Phenol, uses
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);

RACT (Reactant or reagent); USES (Uses)
(ammonia indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 10025-98-6, Potassium tetrachloropalladate(II) 222159-57-1, Silver p-sulfoaminobenzoate
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(carbon monoxide indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 119-93-7, o-Tolidine 34314-06-2, Tetramethylbenzidine
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(chlorine indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 124-38-9, Carbon dioxide, analysis 630-08-0, Carbon monoxide, analysis 7664-41-7, Ammonia, analysis **7722-84-1**, Hydrogen peroxide (H2O2), analysis 7782-44-7, Oxygen, analysis 7782-50-5, Chlorine, analysis 7783-06-4, Hydrogen sulfide, analysis 10028-15-6, Ozone, analysis 10102-44-0, Nitrogen dioxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detection of; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 521-31-3, Luminol 13746-66-2, Potassium **ferricyanide**
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(hydrogen peroxide indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 14402-89-2, Sodium nitroprusside
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(hydrogen sulfide and ammonia indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 63-74-1, Sulfanilamide 121-57-3 32449-15-3, 1,2-Ethanediamine, N-1-naphthalenyl-, monohydrochloride
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(nitrogen dioxide indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 613-11-6, Leucomethylene blue 7758-89-6, Cuprous chloride 10049-05-5, Chromous chloride
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(oxygen indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 81-88-9 13558-31-1 17372-87-1, Eosin
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(ozone indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 76-59-5, Bromthymol blue 143-74-8, Phenol red
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(pH indicator; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT 37626-13-4, Teflon AF 2400
RL: DEV (Device component use); USES (Uses)
(waveguide; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)

IT **7722-84-1**, Hydrogen peroxide (H2O2), analysis

RL: ANT (Analyte); ANST (Analytical study)
(detection of; gas **sensor** based on optical properties of liquid-core-filled optical fiber waveguides)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:771500 HCAPLUS
DN 129:350266
TI A novel assembly for perfluorinated ion-exchange membrane-based **sensors** designed for electroanalytical measurements in nonconducting media
AU Toniolo, Rosanna; Comisso, Nicola; Bontempelli, Gino; Schiavon, Gilberto; Sitran, Stefano
CS Department Chemical Sciences Technology, University Udine, Udine, I-33100, Italy
SO Electroanalysis (1998), 10(14), 942-947
CODEN: ELANEU; ISSN: 1040-0397
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A perfluorinated ion-exchange membrane-based **sensor** suitable for electroanal. measurements in electrolyte-free media is described, which was assembled following a novel design enabling an easier preparation procedure. It was fabricated by inserting the terminal portion of a working Pt wire electrode into a Nafion tubing of suitable diameter and welding the wire thus wrapped to the bottom of a cell body by an insulating epoxy resin. The remainder upper part of the working electrode was covered by a Teflon tubing to avoid the elec. contact with the internal electrolyte introduced into the cell body, which was equipped with a counter and a reference electrode. As a result of this configuration, the actual working-electrode surface is the wire circumference contacted by the polyelectrolyte material at the bottom of the assembly which is exposed to the sample. The performance of this **sensor** was tested by cyclic voltammetry, amperometric monitoring and flow injection anal. for the electroanal. of a series of prototype analytes either dissolved in electrolyte-free water (H2O2, hydroquinone, **ferricyanide**, I- and Br-) or present in N2 atmospheres (triethylamine and O2). Detection limits for these analytes were estimated (σ = 3), together with the corresponding ranges within which the responses display a linear dependence on the analyte concentration The novel assembly is suitable only for the anal. in electrolyte-free liquid samples, while for the anal. of gaseous atmospheres, especially for flowing gases, ion-exchange membrane **sensors** prepared by the more usual procedure based on the use of working electrode materials embedded into a moist polyelectrolyte membrane should be preferred.
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 61
ST Nafion platinum polymer electrode membrane **sensor**; solid polymer electrolyte membrane **sensor**; amperometric **sensor** Nafion platinum polymer electrode; voltammetric **sensor** Nafion platinum polymer electrode
IT **Sensors**

(amperometric; perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT Epoxy resins, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(in perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT Flow injection analysis
(perfluorinated ion-exchange membrane-based **sensors** designed as electroanal. FIA-detector in nonconducting media)

IT Membrane electrodes
Polyelectrolytes
(perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT Solid electrolytes
(polymer; perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT Ionomers
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing; perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT **Sensors**
(voltammetric **sensors**; perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT 7727-37-9, Nitrogen, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(determination by perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in)

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(determination by perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in electrolyte-free)

IT 121-44-8, Triethylamine, analysis 123-31-9, Hydroquinone, analysis **7722-84-1**, Hydrogen peroxide, analysis 7782-44-7, Oxygen, analysis 13408-62-3, **Ferricyanide** 20461-54-5, Iodide, analysis 24959-67-9, Bromide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination by perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination by perfluorinated ion-exchange membrane-based **sensors** designed for electroanal. measurement in nonconducting media)

RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:656965 HCAPLUS
DN 125:296650
TI Electrochemical system for rapid detection of biochemical agents that catalyze a redox potential change
IN Song, Herking; Hafeman, Dean G.
PA Molecular Devices Corporation, USA
SO U.S., 42 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5567302	A	19961022	US 1995-483249	19950607
PRAI	US 1995-483249		19950607		

AB The present invention relates to a system for detecting, in a reliable, precise and highly sensitive manner, biochem. agents such as enzymes that catalyze a redox potential change. One electrode is used to measure redox potential changes in an aqueous electrolyte containing the biochem. agents. Another electrode is used to deliver a feedback current to the electrolyte in response to measured changes in electrolyte redox potential. The amount of feedback current or charge delivered through the electrode to the electrolyte is sufficient in magnitude to maintain a constant redox potential. Quantitation of the amount of feedback current or charge necessary to maintain the constant redox potential may then be used to determine the amount of biochem. agents present. Alternatively, the redox potential need not be kept constant, but instead may be allowed to reach a new steady-state. Thus, the current, or charge, conducted by a feedback electrode to maintain a new steady-state potential in the presence of an enzymic reaction may be used to quantitate the amount of enzymic activity present. The present invention provides precision in the quantitation results, high sensitivity in enzyme detection, and a wider dynamic range for quantitation of the biochem. agent. The invention is especially useful for the determination of enzyme labels used in immunoassays, e.g., β-D-galactosidase, horseradish peroxidase, alkaline phosphatase, and glucose oxidase.

IC ICM G01N027-26
NCL 205777500
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 7, 15, 72, 76
ST immunoassay enzyme detn redox potential change; LAPS electrode array coulometric feedback system; semiconductor electrode electrolyte redox potential detn; light addressable potentiometric **sensor** enzyme detn
IT Coulometers
Electrodes
Electroluminescent devices
Electrolytes
Semiconductor devices
pH
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)
IT Albumins, analysis
RL: ANT (Analyte); ANST (Analytical study)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)
IT Enzymes

RL: ANT (Analyte); CAT (Catalyst use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT Potentiometers
(light-addressable potentiometric **sensor**; electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT Immunoassay
(enzyme, electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT **Sensors**
(optical, electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT Electric potential
(redox, electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT 9001-37-0, Glucose oxidase 9001-37-0D, Glucose oxidase, biotinylated 9001-78-9, Alkaline phosphatase 9001-78-9D, Alkaline phosphatase, streptavidin conjugates 9003-99-0, Peroxidase 9003-99-0D, Peroxidase, biotinylated 9013-20-1D, Streptavidin, alkaline phosphatase conjugates 9031-11-2 9031-11-2D, biotinylated
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT **7722-84-1**, Hydrogen peroxide, reactions 13408-62-3, **Ferricyanide** 13408-63-4, Ferrocyanide 54827-17-7, Benzidine, 3,3',5,5'-Tetramethyl-
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT 7439-88-5, Iridium, analysis 7440-06-4, Platinum, analysis 7440-21-3, Silicon, analysis 7440-44-0, Carbon, analysis 7440-57-5, Gold, analysis 7631-86-9, Silicon oxide, analysis 12033-89-5, Silicon nitride, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

IT **7722-84-1**, Hydrogen peroxide, reactions
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(electrochem. system for detection of biomols. and enzymes that catalyze redox potential changes)

RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:114133 HCAPLUS
DN 124:192567
TI Studies of consumed chemiluminescence-based **sensors**

AU Lu, Jian-Zhong
CS Department of Chemistry, Nanjing University, Nanjing, 210093, Peop. Rep. China
SO Huaxue Xuebao (1996), 54(1), 71-6
CODEN: HHHPA4; ISSN: 0567-7351
PB Kexue
DT Journal
LA Chinese
AB Six types of consumed chemiluminescence **sensors** for ascorbic acid, cyanide, Mn2+, Co2+ and H2O2 were developed. It was based on the new approach that all of the reagents involved in the chemiluminescence reactions were immobilized electrostatically on Amberlyst A-27 or D151 ion-exchange resin. The analytes of interest can be sensed directly by the reaction with the chemiluminescence reagents, which were eluted by Na3PO4 or NaCl from the immobilization column prior to the chemiluminescence reaction. Not only these **sensors** have a wide linear range high sensitivity and simplicity of instrumentation, but also the immobilization methods of the chemiluminescence reagents are simple. They were applied successfully to the detns. of analytes in various simples.
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 80
ST consumed chemiluminescence based **sensor**; ascorbic acid consumed chemiluminescence based **sensor**; hydrogen peroxide consumed chemiluminescence based **sensor**; manganese cobalt consumed chemiluminescence based **sensor**; cyanide consumed chemiluminescence based **sensor**
IT **Sensors**
(consumed chemiluminescence-based **sensors** for ascorbic acid, cyanide, Mn2+, Co2+, and H2O2)
IT 50-81-7, Ascorbic acid, analysis 57-12-5, Cyanide, analysis **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(consumed chemiluminescence-based **sensors** for)
IT 7439-96-5, Manganese, analysis 7440-48-4, Cobalt, analysis
RL: ANT (Analyte); ANST (Analytical study)
(divalent; consumed chemiluminescence-based **sensors** for)
IT 7440-50-8, Copper, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(divalent; in consumed chemiluminescence-based **sensors** for cyanide and H2O2)
IT 13746-66-2, Potassium **ferricyanide**
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(in consumed chemiluminescence-based **sensors** for ascorbic acid)
IT 521-31-3, Luminol 9074-22-0, Amberlyst A 27 163293-51-4, D 151
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(in consumed chemiluminescence-based **sensors** for ascorbic acid, cyanide, Mn2+, Co2+, and H2O2)
IT 7790-21-8, Potassium periodate
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(in consumed chemiluminescence-based **sensors** for manganese and cobalt)
IT 7440-47-3, Chromium, analysis

RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(trivalent; in consumed chemiluminescence-based **sensors** for H2O2)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(consumed chemiluminescence-based **sensors** for)

RN 7722-84-1 HCAPLUS

CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:486710 HCAPLUS

DN 123:131327

TI Development of magnetic and electrochemical properties from the encapsulation of molecules in sol-gel glasses

AU Lan, E. H.; Dave, B.; Dunn, B.; Valentine, J. S.; Zink, J. I.

CS Dep. Materials Sci. Eng., Univ. California, Los Angeles, CA, 90024, USA

SO Materials Research Society Symposium Proceedings (1995), 371(Advances in Porous Materials), 267-76
CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

AB The flexible solution chemical of the sol-gel process was used to encapsulate a wide variety of organic mols. and biomols. in the pores of inorg. matrixes. This paper describes two new types of sol-gel materials in which the dopant mols. induce specific magnetic and electrochem. properties. The encapsulation of ferritin, an iron storage protein, produces an optically transparent, paramagnetic sol-gel material. The size of the protein (≈100 Å) makes this dopant among the largest mols. yet encapsulated by the sol-gel method. The 2nd material incorporates Fe(CN)6 and exhibits mediated electron transport in the sol-gel matrix. The addnl. encapsulation of an enzyme (peroxidase or alc. dehydrogenase) leads to electrochem. detection of specific analytes via catalytic reactions.

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 66, 80

ST mol encapsulation sol gel glass **sensor**; ferritin encapsulation sol gel glass **sensor**; **ferricyanide** encapsulation sol gel glass **sensor**; enzyme encapsulation sol gel glass **sensor**; magnetic property mol encapsulation sol silica; electrochem property mol encapsulation sol silica

IT Encapsulation
Sensors
(encapsulation of mols. in sol-gel glasses for preparation of magnetic and electrochem. **sensors**)

IT Ferritins
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(magnetic and electrochem. properties from the encapsulation of mols. in silica gel)

IT Silica gel, analysis
RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES

(Uses)
(magnetic and electrochem. properties from the encapsulation of mols. in silica gel)
IT 9003-99-0, Peroxidase 9031-72-5, Alcohol dehydrogenase 13408-62-3, **Ferricyanide**
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(encapsulation of mols. in sol-gel glasses for preparation of electrochem. **sensors**)
IT 64-17-5, Ethanol, analysis **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(encapsulation of mols. in sol-gel glasses for preparation of electrochem. **sensors** for)
IT 125495-77-4, Trimethylorthosilicate
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(in preparation of silicate sol for encapsulation of mols. for preparation of electrochem. **sensors**)
IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(encapsulation of mols. in sol-gel glasses for preparation of electrochem. **sensors** for)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:598958 HCAPLUS
DN 119:198958
TI Microbiosensors for acetylcholine and glucose
AU Karube, Isao; Yokoyama, Kenji; Tamiya, Eiichi
CS Res. Cent. Adv. Sci. Technol., Univ. Tokyo, Tokyo, 153, Japan
SO Biosensors & Bioelectronics (1993), 8(3-4), 219-28
CODEN: BBIOE4; ISSN: 0956-5663
DT Journal
LA English
AB Microbiosensors based on carbon and platinum fibers are described. Carbon fibers were used to construct microelectrodes of 7 μm diameter Electrochem. operations for pre-electrolysis and measuring were examined for the highly sensitive determination of hydrogen peroxide. A triangular potential (-2 to +2 V vs. Ag/AgCl) was applied before measuring each pair of double pulses (first pulse: 750 mV; second pulse: 1100 mV). The determination limit was 0.1 μM of hydrogen peroxide. The reproducible determination of hydrogen peroxide is possible even in samples containing albumin protein. The separation of hydrogen peroxide from ascorbic acid is also possible because the oxidation potential of ascorbic acid is different from that of hydrogen peroxide. An acetylcholine microsensor was fabricated by immobilizing acetylcholine esterase and choline oxidase on the carbon fiber by entrapment with poly(vinyl alc.)-quaternized stilbazole (PVA-SbQ). This **sensor**

gave a linear calibration plot for the range 0.1-1.0 mM with a linear correlation coefficient of 0.9842. Glucose oxidase (GOD) and glucose dehydrogenase (GDH) immobilized cylindrical platinum microelectrodes were fabricated, and their characteristics were evaluated, resp., by using 1,4-benzoquinone (BQ) and **ferricyanide** as electron mediators. Each enzyme was immobilized by using PVA-SbQ on a cylindrical microelectrode of 2 μm diameter A linear range in the calibration curve of the GOD-based glucose microsensor was observed to be wider than that obtained using a disk electrode of 1 mm diameter The mediated response of the 2 μm glucose **sensor** was compared with the response resulting from hydrogen peroxide detection. This result showed that a higher response and a wider linear range were observed with highly concentrated mediator. A much higher response of the GDH immobilized 2 μm microelectrode was obtained when not only **ferricyanide** but also diaphorase was employed to reoxidize the NADH produced by the enzyme reaction. of GDH. The GDH-based glucose microsensor was found to be unaffected by the concentration of dissolved oxygen.

CC 9-7 (Biochemical Methods)
Section cross-reference(s): 2

ST acetylcholine detn micro biosensor; glucose detn micro biosensor; biosensor micro glucose acetylcholine

IT Albumins, miscellaneous
RL: MSC (Miscellaneous)
(hydrogen peroxide determination with microbiosensor in relation to)

IT Immobilization, biochemical
(of enzymes, for acetylcholine and glucose determination with microbiosensor)

IT Electrodes
(bio-, enzyme, micro-, for acetylcholine and glucose determination)

IT 50-99-7, Glucose, analysis 51-84-3, Acetylcholine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, microbiosensor for)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, with microbiosensor, acetylcholine and glucose determination in relation to)

IT 13408-62-3, **Ferricyanide**
RL: ANST (Analytical study)
(glucose determination response with diaphorase-glucose dehydrogenase-immobilized microbiosensor enhancement by)

IT 50-81-7, Ascorbic acid, miscellaneous
RL: MSC (Miscellaneous)
(hydrogen peroxide determination with microbiosensor in relation to)

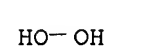
IT 9000-81-1, Acetylcholine esterase 9028-67-5, Choline oxidase
RL: PROC (Process)
(immobilization of, for acetylcholine determination with microbiosensor)

IT 9001-37-0, Glucose oxidase 9028-53-9, Glucose dehydrogenase
RL: PROC (Process)
(immobilization of, for glucose determination with microbiosensor)

IT 9079-67-8, Diaphorase
RL: PROC (Process)
(immobilization of, with glucose dehydrogenase for glucose determination with microbiosensor)

IT **7722-84-1**, Hydrogen peroxide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, with microbiosensor, acetylcholine and glucose determination in

relation to)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)



L45 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:111787 HCAPLUS
DN 118:111787
TI Ion-metal and ion-selective electrode properties compared on the basis of the polyelectrode model
AU Ilyushchenko, M. A.; Mirkin, V. A.; Falkenstern, L. E.
CS Kazakh State Univ., Almaty, Kazakhstan
SO Sensors and Actuators, B: Chemical (1992), B10(1), 21-9
CODEN: SABCEB; ISSN: 0925-4005
DT Journal
LA English
AB The behaviors of ion-metal, ion-selective and film electrodes in solns. containing a redox system (Fe(CN)63-/Fe(CN)64-, Fe3+/Fe2+, quinone-hydroquinone, H2O2, ascorbic acid and dissolved O2) are compared. The electrodes used are made of Ag and Ag halides and chalcogenides. The film electrodes based on Ag chalcogenides and the metallic electrode had the same properties. The Ag-halide electrode is similar to the ion-selective ones. The results are interpreted from the point of view of electrochem. kinetics and mixed conductivity depending on the stoichiometric composition
CC 72-2 (Electrochemistry)
Section cross-reference(s): 79
ST electrode property redox system potentiometric **sensor**; silver halide chalcogenide electrode redox system; halide silver electrode redox system **sensor**; chalcogenide silver electrode redox system **sensor**; potential silver halide chalcogenide redox system; film electrode redox system potentiometric **sensor**; ion selective electrode redox system **sensor**
IT Silver chalcogenides
Silver halides
RL: PRP (Properties)
(electrodes, properties of, effect of redox systems on, potentiometric **sensors** in relation to)
IT Electrodes
(ion-metal, properties of, potentiometric **sensors** in relation to)
IT Electric potential
(of film electrodes and ion-selective electrode, response of **sensor** in relation to)
IT **Sensors**
(potentiometric, effect of redox systems on)
IT Redox agents
(properties of ion-metal and ion-selective electrodes in presence of, response of potentiometric **sensor** in relation to)
IT Electrodes
(film, properties of, potentiometric **sensors** in relation to)
IT Electrodes
(ion-selective, properties of, potentiometric **sensors** in relation to)

IT Electrodes
(potentiometric, properties of)
IT 7440-06-4, Platinum, properties 7440-22-4, Silver, properties
12002-99-2, Silver telluride (Ag2Te)
RL: PRP (Properties)
(elec. potential of film electrode of, in solution containing redox system, response of potentiometric **sensor** in relation to)
IT 7785-23-1, Silver bromide (AgBr)
RL: PRP (Properties)
(elec. potential of film electrode of, with and without silver telluride in solution containing redox system, response of potentiometric **sensor** in relation to)
IT 7783-90-6, Silver chloride (AgCl), properties
RL: PRP (Properties)
(elec. potential of film electrode of, with and without silver telluride, in presence of hydrogen peroxide, response of potentiometric **sensor** in relation to)
IT 7783-96-2, Silver iodide (AgI)
RL: PRP (Properties)
(elec. potential of ion-selective electrode of, in presence of ascorbic acid, response of potentiometric **sensor** in relation to)
IT 21548-73-2, Silver sulfide (Ag2S)
RL: PRP (Properties)
(elec. potential of ion-selective electrode with, in solution containing redox
couple, response of potentiometric **sensor** in relation to)
IT 50-81-7, Ascorbic acid, properties 106-51-4, Quinone, properties
123-31-9, Hydroquinone, properties 7439-89-6, Iron, properties
7722-84-1, Hydrogen peroxide, properties 7782-44-7, Oxygen, properties 13408-62-3, **Ferricyanide** 13408-63-4, Ferrocyanide
RL: PRP (Properties)
(properties of ion-metal and ion-selective electrodes in solution containing redox system with, response of potentiometric **sensor** in relation to)
IT **7722-84-1**, Hydrogen peroxide, properties
RL: PRP (Properties)
(properties of ion-metal and ion-selective electrodes in solution containing redox system with, response of potentiometric **sensor** in relation to)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

L45 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:68892 HCAPLUS
DN 118:68892
TI Non-linear and pulse phenomena during hydrogen peroxide reduction at chalcopyrite (photo)cathodes
AU Cattarin, S.; Tributsch, H.
CS IPELP, Padua, 35100, Italy
SO Electrochimica Acta (1993), 38(1), 115-22
CODEN: ELCAAV; ISSN: 0013-4686
DT Journal
LA English

AB The current-voltage curves of H2O2 reduction in an alkaline medium recorded at CuFeS2 and CuInSe2 cathodes showed non-monotonic profiles, with a pronounced current wave and a region of neg. i/U slope. In the latter region, photocurrents inverted in sign are observed at CuInSe2 electrodes. XP spectra taken on CuFeS2 electrodes after polarization expts. show products of surface corrosion and (depending on emersion potential) changes in the oxidation state of Cu. On the basis of electrochem. and spectroscopic results, the current wave is attributed to activation of a catalytic mechanism of H2O2 reduction involving Cu species. Current oscillations are observed when the polarization conditions are properly set. An "elec." anal. of the oscillatory phenomena is proposed, focused on the conditions of polarization control and resulting circuit (in)stability. At CuInSe2, illumination may be used as a key parameter to switch the oscillatory regime on and off or to trigger individual oscillations. The system may be considered to be a simple model device of a light **sensor** based on an electrode/electrolyte junction.

CC 72-2 (Electrochemistry)
Section cross-reference(s): 67, 74

ST hydrogen peroxide redn electrochem photoelectrochem; chalcopyrite cathode photocathode hydrogen peroxide; oscillation current redn hydrogen peroxide; copper iron sulfide electrode; indium copper selenide electrode

IT Photoconductivity and Photoconduction
(of copper iron sulfide in presence of hydrogen peroxide)

IT Reduction, electrochemical
(of hydrogen peroxide on copper iron sulfide or copper indium selenide electrodes)

IT Oscillating reaction
(photoelectrochem. reduction of hydrogen peroxide on copper iron sulfide and copper indium selenide electrodes)

IT Reduction, electrochemical
(photochem., of hydrogen peroxide on copper iron sulfide or copper indium selenide electrodes)

IT Reduction catalysts
(photoelectrochem., copper species, for hydrogen peroxide)

IT 7664-41-7, Ammonia, uses 7757-82-6, Disodium sulfate, uses 10043-35-3, Boric acid, uses
RL: USES (Uses)
(electrochem. reduction of hydrogen peroxide at copper iron sulfide or copper indium selenide in solution containing)

IT 13408-62-3, **Ferricyanide**
RL: PRP (Properties)
(electrochem. reduction of hydrogen peroxide on copper iron sulfide electrode in presence of, oscillation in relation to)

IT 12015-76-8, Copper iron sulfide (CuFeS2) 12018-95-0, Copper indium selenide CuInSe2
RL: PRP (Properties)
(electrochem. reduction of hydrogen peroxide on, oscillation in)

IT **7722-84-1**, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, electrochem., on copper iron sulfide and copper indium selenide electrodes)

IT 1310-58-3, Potassium hydroxide, uses 7447-40-7, Potassium chloride, uses 7631-99-4, Sodium nitrate, uses
RL: USES (Uses)
(voltammetry of hydrogen peroxide on copper iron sulfide in solution containing)

IT **7722-84-1**, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(reduction of, electrochem., on copper iron sulfide and copper indium selenide electrodes)
RN 7722-84-1 HCAPLUS
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

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